IN THE CLAIMS

1. (Currently Amended) A Virtual Private Network (VPN), comprising:

a ~~shared label switching~~ Multi Protocol Label Switching (MPLS) network;

a plurality of Virtual Local Access Networks (VLANs) each coupled to an edge router of the shared label switching network, the VLANs each communicating traffic with a corresponding edge router utilizing channelized Ethernet over SONET (EoS); and

the edge routers interfacing the VLANs with the ~~shared label switching~~ MPLS network, the edge routers comprising:

a transmit-side edge router operable to convert an ingress VLAN packet received from a VLAN and associated with a VPN to an MPLS packet and to send the MPLS packet to the MPLS network, wherein converting an ingress VLAN packet to an MPLS packet comprises identifying a VPN label that corresponds to a VLAN identifier (VID) of the ingress VLAN packet and generating an MPLS packet having the VPN label; and

a receive-side edge router operable to convert an MPLS packet received from the MPLS network to an egress VLAN packet and sending the egress VLAN packet to a VLAN associated with the VPN, wherein converting the received MPLS packet to an egress VLAN packet comprises identifying a VID that corresponds to a VPN label contained in the received MPLS packet and generating a VLAN packet having the VID.

2. (Canceled)

3. (Canceled)

4. (Currently Amended) The VPN of Claim [3] 1, the edge routers each comprising a first table storing correspondence between VLAN identifiers (VIDs) contained in VLAN packets and VPN labels contained in MPLS packets.

5. (Canceled)

6. (Canceled)

7. (Currently Amended) The VPN network of Claim [6] 1, wherein each edge routers comprises:

a route decision unit for determining a route which directs an MPLS packet to a receive-side edge router;

a second table for storing forwarding labels, which specify routes decided by the route decision unit, mapped to addresses of receive-side edge routers; and

the transmit-side edge router finds a receive-side edge router corresponding to a destination of a packet, finds a forwarding label, which corresponds to the receive-side edge router, from the second table, generates an MPLS packet that contains the VPN label and the forwarding label and sends the MPLS packet to the MPLS network.

8. (Currently Amended) The VPN of Claim [5] 1, wherein a first edge router which constructs the VPN and is connected to a VLAN sends a second edge router an address set including an address of a VLAN-compatible device connected to the first edge router and the address of the first edge router, and each edge router creates a routing table based upon the received information.

9. (Original) The VPN of Claim 8, wherein the transmit-side edge router finds a receive-side edge router, which corresponds to the destination of the packet, from said routing table.

10. (Currently Amended) The VPN of Claim [3] 1, wherein the transmit-side edge router discards a VLAN packet having a VID value that is greater than a set value.

11. (Currently Amended) The VPN of Claim [3] 1, wherein the transmit-side edge router inserts user priority information, which is contained in a tag of a VLAN packet, into a label of an MPLS packet as IP precedence information of the MPLS network, and the receive-side edge router inserts IP precedence information, which is contained in the label of an MPLS packet, into the tag of a VLAN packet as user priority information of the VLAN.

12. (Currently Amended) An edge router of a shared label switching network, comprising:

an Ethernet over SONET (EoS) line card including a SONET channelization element operable to receive from a Virtual Local Access Network (VLAN) a channelized EoS signal including a plurality of Ethernet channels and to send VLAN packets received in each of the Ethernet channels to a corresponding Ethernet interface;

one or more Virtual Private Network (VPN) units coupled to the Ethernet interfaces and operable to identify a VPN for the VLAN packets and to send the VLAN packets to a corresponding VPN subrouter based on the VPN; and

each VPN subrouter operable to convert the VLAN packets to a label switching packet for transmission over the shared label switching network in the VPN, wherein converting a VLAN packet to a label switching packet comprises identifying a VPN label that corresponds to a VLAN identifier (VID) of the VLAN packet and generating a label switching packet having the VPN label and a forwarding label.

13. (Original) The edge router of Claim 12, wherein the label switching network comprises a Multi Protocol Label Switching (MPLS) network.

14. (Canceled)

15. (Currently Amended) The edge router of Claim [14] 12, wherein each VPN subrouter is further operable to convert the VLAN packet to the ~~MPLS~~ label switching packet for transmission over the shared ~~MPLS~~ label switching network by inserting user priority information from ~~the tag of~~ the VLAN packet into a label of the ~~MPLS~~ label switching packet.

16. (Currently Amended) A method, comprising:

receiving a SONET frame including a plurality of Ethernet channels, each Ethernet channel including ingress Virtual Local Access Network (VLAN) packets associated with one or more Virtual Private Networks (VPNs);

determining a VPN associated with each ingress VLAN packet; and

converting each ingress VLAN packet to an egress label switching packet based on the associated VPN for transmission over a shared network, wherein converting a VLAN packet to an egress label switching packet comprises identifying a VPN label that corresponds to a VLAN identifier (VID) of the VLAN packet and generating an egress label switching packet having the VPN label and a forwarding label.

17. (Canceled)

18. (Original) The method of Claim 16, wherein the egress label switching packet comprises a Multi Protocol Label Switching (MPLS) packet.

19. (Currently Amended) A method, comprising:

receiving a channelized Ethernet over SONET (EoS) signal comprising a plurality of Ethernet channels, each Ethernet channel including a plurality of Virtual Local Access Network (VLAN) packets;

demultiplexing the Ethernet channels;

determining a Virtual Private Network (VPN) associated with each VLAN packet of each Ethernet channel; and

converting the VLAN packets for each Ethernet channel to label switching packets based on the associated VPN for transmission through a shared label switching network, wherein converting a VLAN packet to a label switching packet comprises identifying a VPN label that corresponds to a VLAN identifier (VID) of the VLAN packet and generating a label switching packet having the VPN label and a forwarding label.

20. (Original) The method of Claim 19, wherein the label switching network comprises a Multi Protocol Label Switching (MPLS) network and the label switching packets comprise MPLS packets.